COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

1. Name: Lt. Gen. (Retired) Mac Armstrong	2. Address: 1301 Pennsylvania Avenue, NW Suite 1100 Washington, DC 20004
3. Phone Number: (202) 626-4240	

4. Please identify the group(s) or organization(s) on whose behalf you are testifying. If you are not testifying on behalf of any group or organization, please indicate "none".

Air Transport Association

5. Are you testifying on behalf of a governmental organization, meaning a federal department or agency, or a state or local department, agency, jurisdiction? (If "yes" skip to item 7.)	Yes	No X

6a. Have you, or any of the organizations or groups which you may be representing, received any federal grants or contracts including subgrants or subcontracts) that are relevant to the subject of the hearing during the current fiscal year or any of the two (2) preceding fiscal years?	Yes	No X

6b. If you checked "yes" for item 6a above, please list the source and amount for each grant, contract, subgrant, or subcontract, received within that period. Please attach additional sheets if necessary.

Source	Amount

7. Please sign and date indicating that to the best of your knowledge the information provided on this form is both true and accurate.

Signature: Malcolm F. Armstrong	Date: April 4, 2002

Adequacy of FAA Oversight of Passenger Aircraft Maintenance

Statement of Malcolm B. Armstrong

Senior Vice President, Aviation Safety and Operations

Air Transport Association of America, Inc.

Before the House Transportation and Infrastructure Committee

Aviation Subcommittee

April 11, 2002

Thank you, Mr. Chairman, for this opportunity to address this committee on the important subject of FAA Oversight of Passenger Aircraft Maintenance.

I will put my remarks into what I believe is the relevant context by simply pointing out that U.S. scheduled airline passenger travel is the safest form of passenger transportation in the world. Despite that fact, we see it as our duty to our customers to continually strive for further improvements. We are convinced that the newly implemented Air Transportation Oversight System brings high potential for such improvements. At the same time, given our extraordinary record of reducing risk using the current oversight systems, we are obligated to approach any changes with serious deliberation and care, to avoid unintentionally inducing risk that might degrade the strength of the fundamental system.

Before discussing changes that are currently underway, it is useful to review the current state of passenger airline safety in the U.S. and how we arrived at that state. According to the National

Safety Council, through the Nineties, commercial aviation safety improved steadily, from six times safer than automobiles to ten times safer than automobiles in terms of miles traveled by an American passenger. (Figure 1) By the same measures, airplanes also became safer than trains or buses by the end of the Nineties. (Figure 2) I would point out that these changes in relative comparisons have been driven solely by continuing air safety improvements.

The Air Transport Association is made up of airlines that carry over 95 percent of the nation's air passengers. We are proud of the role our member airlines have played, in partnership with the FAA and manufacturers, in achieving this sterling safety record.

Congressional action, in the form of the Federal Aviation Act of 1958, set the stage for the advent of the jet age in the early 1960s. Joint efforts among designers, builders, operators and the newly established Federal Aviation Administration produced a systematic approach to inspecting our work and investigating accidents for lessons learned, which led to dramatic improvements in our accident rates. By the middle 1980s, U.S. scheduled passenger airline fatal accident rates were reduced to the point that they had become statistically rare events. (Figure 3) Therefore, we need new methods that allow us to learn safety lessons from our routine daily operations, in addition to what we learn from our infrequent accidents.

During this same period since 1958, the art of aircraft design advanced as well. Two attributes -- increased component reliability and enhanced ease of maintenance -- made significant contributions to the overall safety of aircraft operations. This in and of itself speaks very highly

of the FAA's ongoing Oversight of Passenger Aircraft Maintenance, and to the improved flow of information between operators and manufacturers that the FAA has facilitated.

The entire aviation community has continued to improve our ability to respond in concert to mishap events as they happen. Commercial aircraft accident rates, which were dramatically reduced from the Sixties to the Eighties, have continued to improve, although at a reduced pace, throughout the Nineties and into the new millennium. Initiatives like the FAA's "Safer Skies" program (Figure 4), and the joint "Commercial Aviation Safety Team" -- which had its roots in the ATA-led "Industry Safety Strategy Team" of the mid-Nineties -- have done an admirable job in identifying and tackling the specific areas that have represented long-standing hazards to safe flight. (Figures 5, 6 and 7 illustrate how global and U.S. accident data have been used to focus on the areas of greatest risk for fatal aircraft accidents.)

Accident data alone do not specifically indicate a need to intensify maintenance oversight to enhance aviation safety. However, the manufacturers, aircraft operators, and government regulators collectively have concluded that, while we need to continue the inspection and investigation processes that have helped us achieve our impressive level of safety improvement, we must find additional ways to go even further.

We need to move toward risk management systems where we are driven not just by errors found in someone's work, but by results learned from systematic continuing surveillance of the processes that guide that work from the outset. Because we so often find that the root cause of an error in work is traced back to an error in process or guidance, it follows that these are the

areas where we should intensify our efforts to find and reduce precursors to accidents. We believe surveillance systems capable of such breakthrough improvement will require extensive collaboration -- and ultimately, trust -- among all participants in the aviation community, to bring them to fruition.

Such change is, and will continue to be, very difficult. Such change requires new tools aimed at auditing processes for safety and quality rather than inspecting performance of a specific task against an established standard. It will require harmonization and accommodation among the various cultures of the manufacturers, operators and regulators, where each of them has historically done their jobs somewhat independently of each other. At the same time, we should acknowledge the fundamentally different business practices and operational environments of the individual operators and manufacturers within the aviation industry, and not attempt to impose a "one-size-fits-all" approach to their respective processes.

A new approach along these lines will require extensive collaboration, because each of the participants has a role in shaping the various aspects of the end processes. Manufacturers develop procedures to monitor and sustain the ongoing quality of their product. Operators develop job guidance for their technicians to do specific work on a specific aircraft type and model, and then develop methods to assure the safety and quality of work. The FAA approves the monitoring processes and guidance documents for each manufacturer and operator, and then oversees their execution to ensure safe outcomes.

There are two systems worthy of mention that we believe can help move toward the change we seek. The Air Transport Oversight System (ATOS) is in the development and early implementation stages, while the Continuing Analysis and Surveillance System is long standing but seems adaptable to this new concept. Given our ongoing excellent record of performance, transition to these new or adapted systems should be done in a deliberate and cautious manner, to ensure that we don't inadvertently introduce unintended risks that might diminish the strength of the underlying system. Such a transition should include education, training, testing and re-testing in incremental stages.

The Department of Transportation Inspector General recently completed audits of both of the previously mentioned systems. We generally agree with the IG findings and recommendations, all of which indicate that both systems have the potential to help us focus more on processes. Their common goal should be to identify the most important risks, thereby indicating how our scarce investment resources might be channeled into the most potentially productive areas. This is in contrast to the old ways of responding primarily to lessons learned from random inspections that search for the rare mistakes by highly qualified and motivated technicians, or from investigations of mishap events occurring at very infrequent intervals.

Under the new systems, such as ATOS, extensive inspections of work will continue to be conducted by all operators, to ensure that high standards of safety and quality continue to be met. Our member air carriers are as highly motivated to safe, quality performance as anyone, first because they are licensed professionals who recognize this as their duty, but also because they know the survival of their business depends on public confidence in their safety.

This is why the number of FAA inspectors that ultimately may shift to process audit methods will not be material to inspection results -- they are extremely few relative to the total number of technically qualified, highly motivated airline technicians rigorously inspecting work in the system every day. The major difference will be that FAA's former inspectors, with suitable training, will be using process audits to focus FAA and airline attention in areas with the greatest potential for further reducing risk. This transition is underway, and is gaining more support from both airline and FAA cultures each day.

Of course, as we move from a compliance-based model to one based on effectiveness of processes, a great deal of objective and subjective data will be developed. Wherever such data is derived from proprietary, internal company sources, it must be protected. The airline industry is committed to working side by side with regulators to do everything possible to improve the safety of aircraft maintenance, training and operations, while preserving our right and ability to safeguard our commercially sensitive internal information throughout this cooperative process. Again, a climate of trust will be an essential part of the new relationship we hope to forge.

We look forward to continuing our work together with the FAA to provide the flying public with the highest levels of safety in the world.

Mr. Chairman, again I thank you for the opportunity to address this committee.

Fatal Accident Rates for Different Modes of Transportation

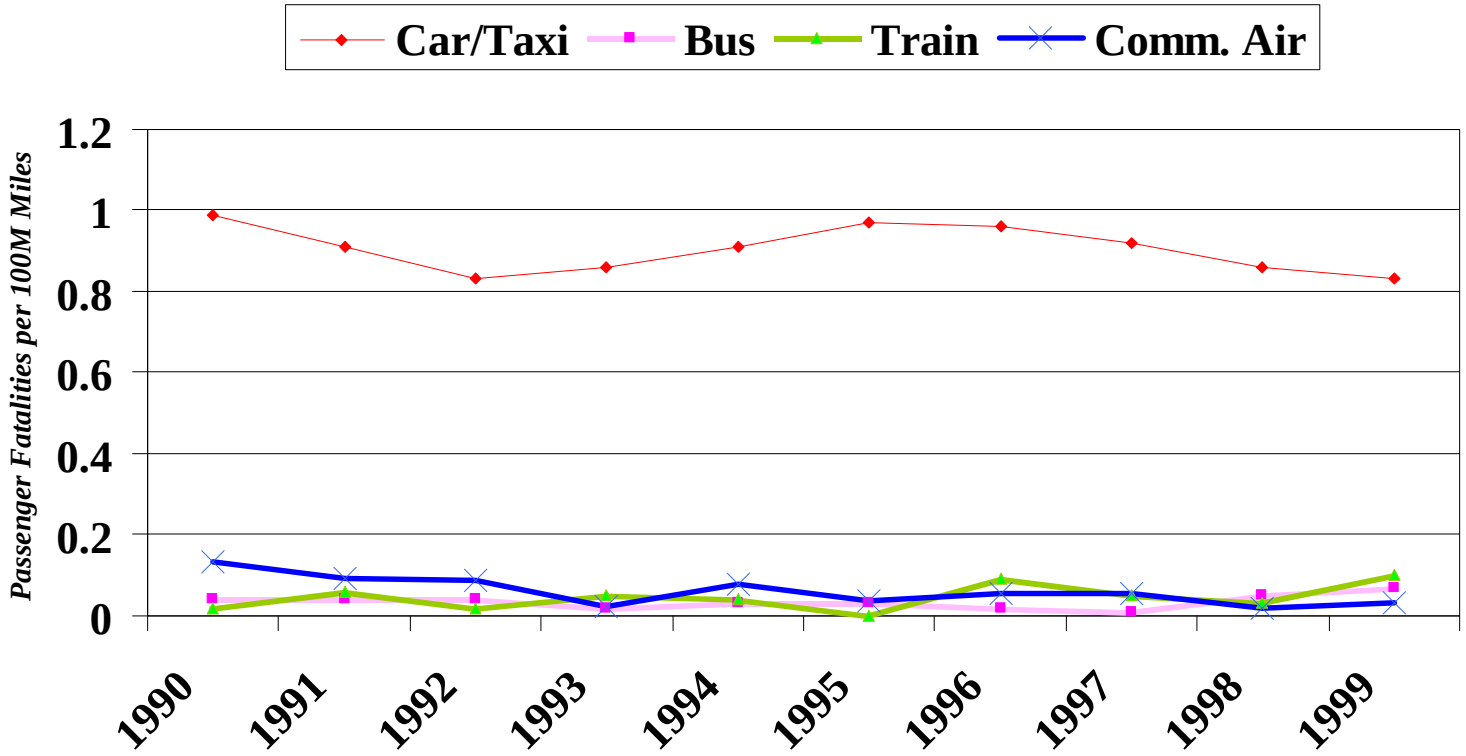

Figure 1. Comparison of Modes of Transportation by Passenger Miles, 1990 - 1999 (Data: National Safety Council, Air Transport Association)

Fatal Accident Rates for Different Modes of Transportation

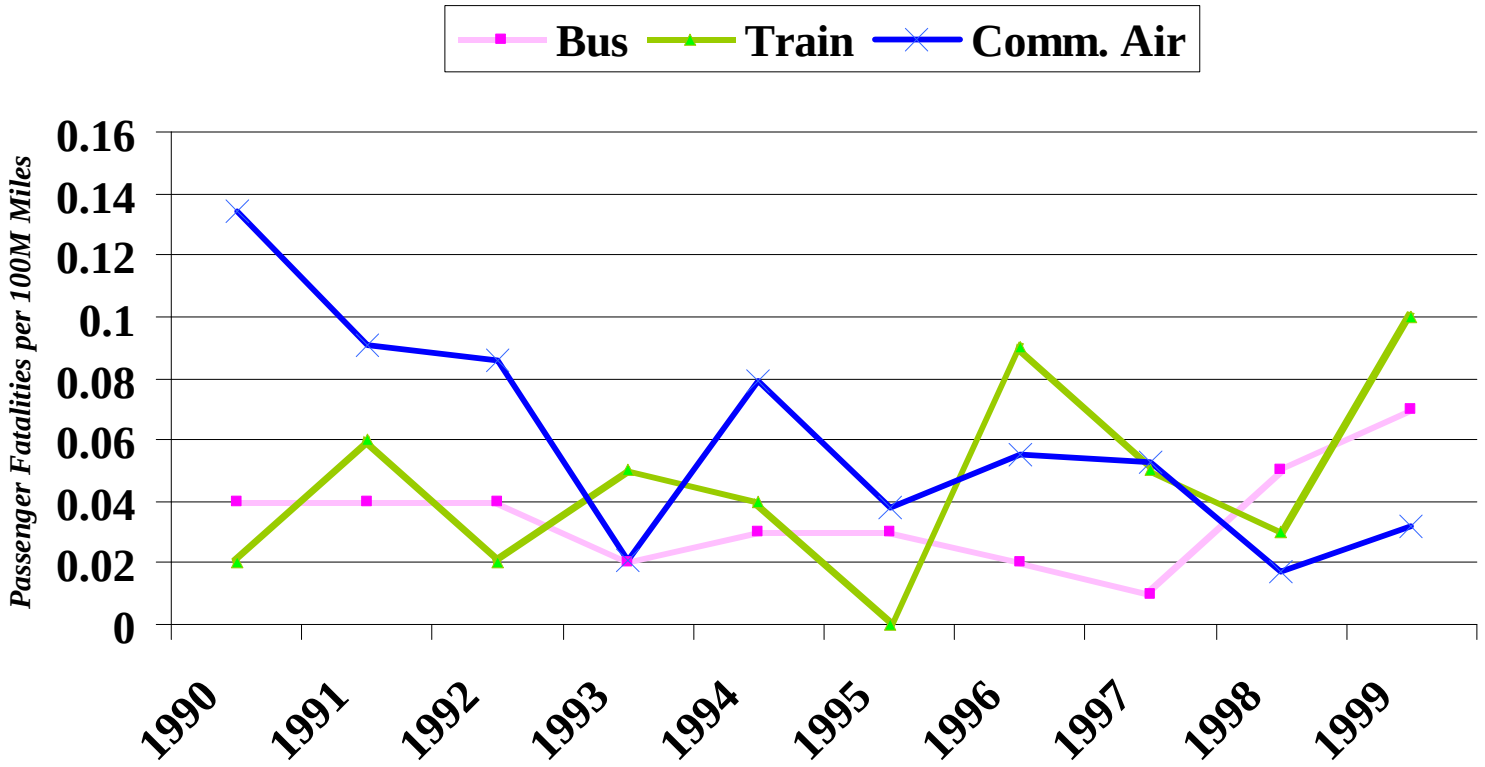

Figure 2. Focus on Mass Transportation Accident Rates by Passenger Miles, 1990 - 1999 (Data: National Safety Council, Air Transport Association)

Aircraft Accidents in the Jet Era

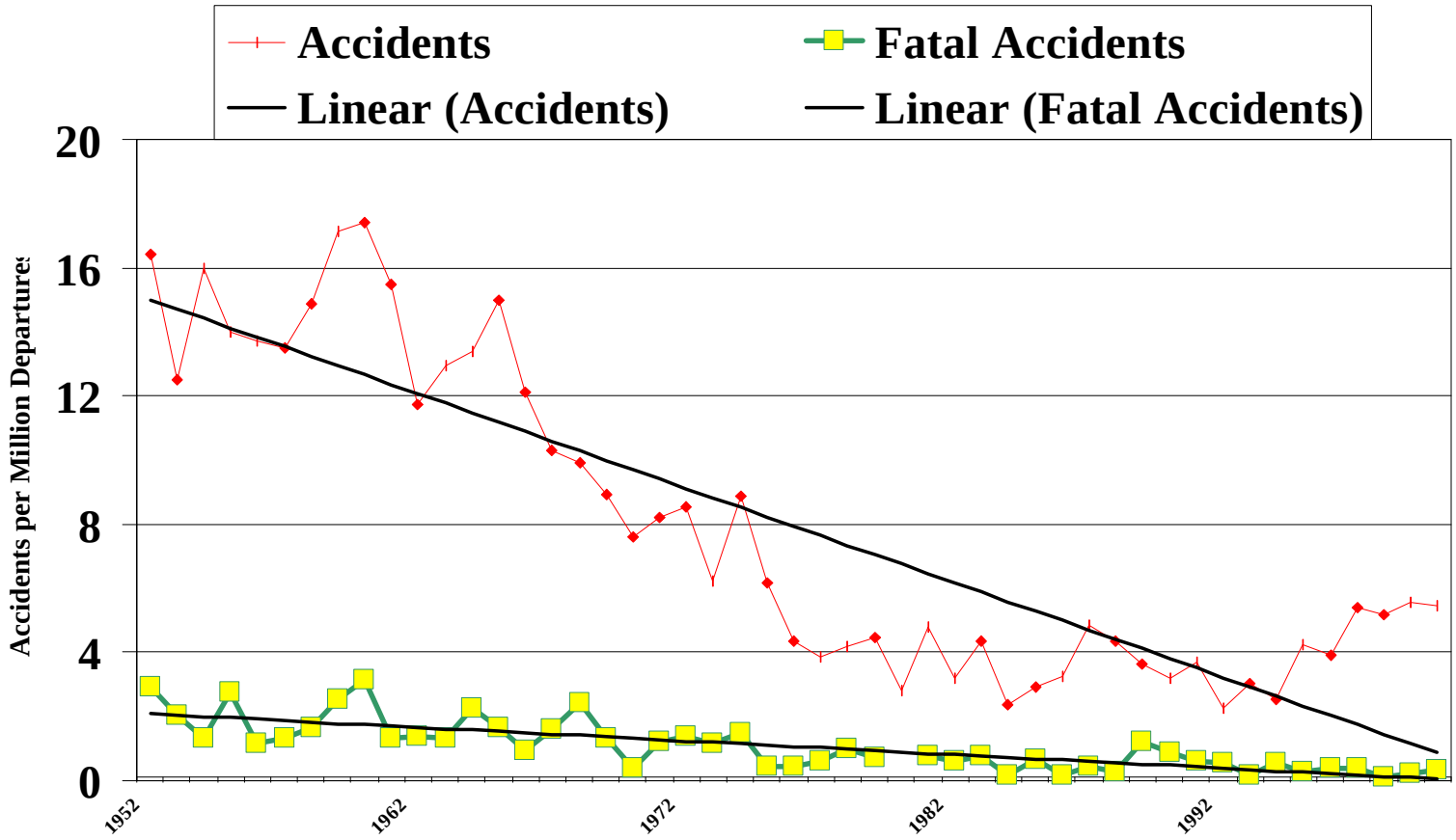

Figure 3. Commercial Aircraft Accidents and Fatal Accidents, 1952 - 2001 (Data: National Transportation Safety Board, Air Transport Association)

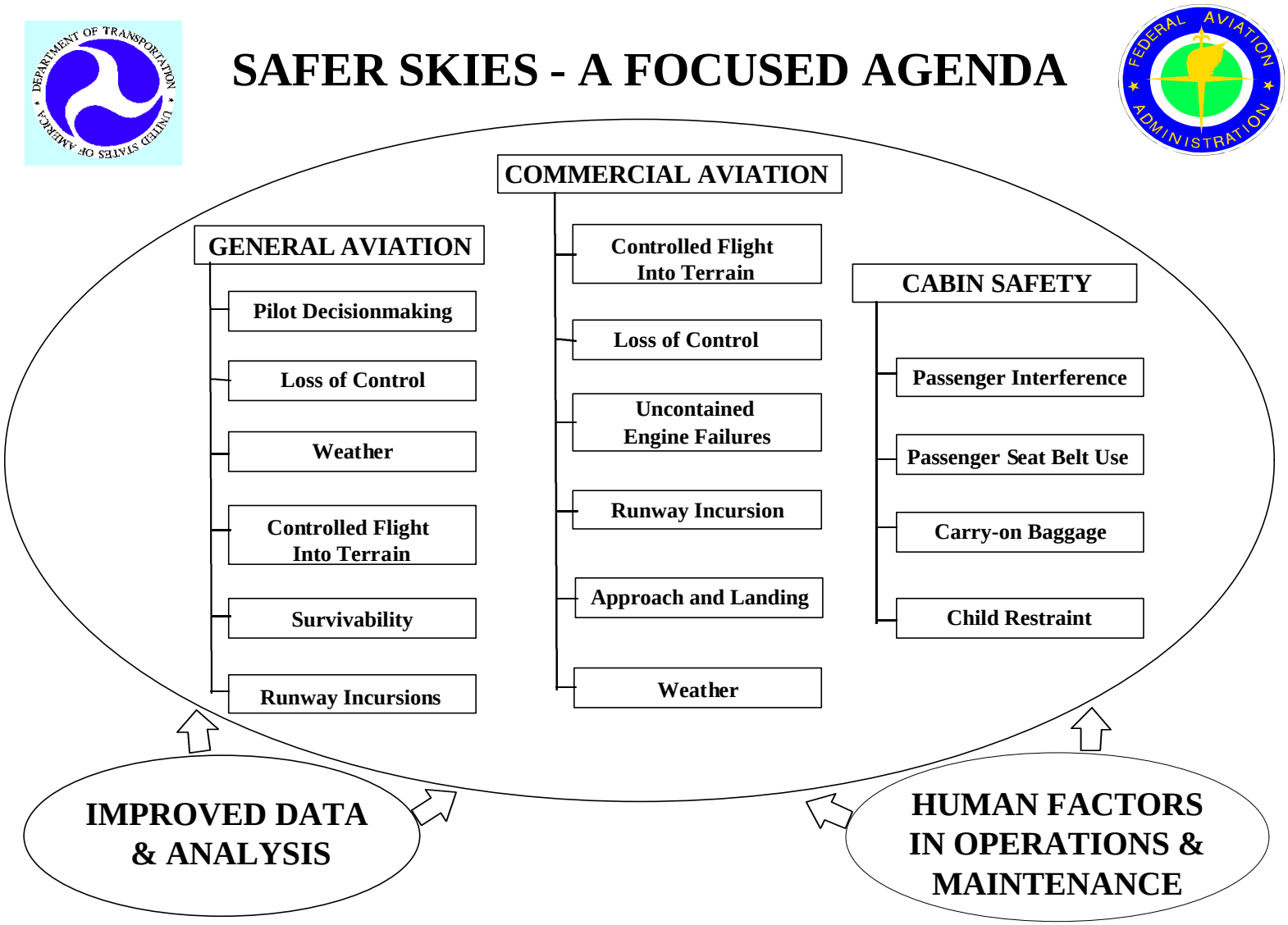

Figure 4. FAA "Safer Skies" Program Overview, showing overarching "data" and "human factors" themes (Source: Federal Aviation Administration)

Worldwide and U. S. Airline Fatalities

Classified by Type of Accident – 1987 through 1996

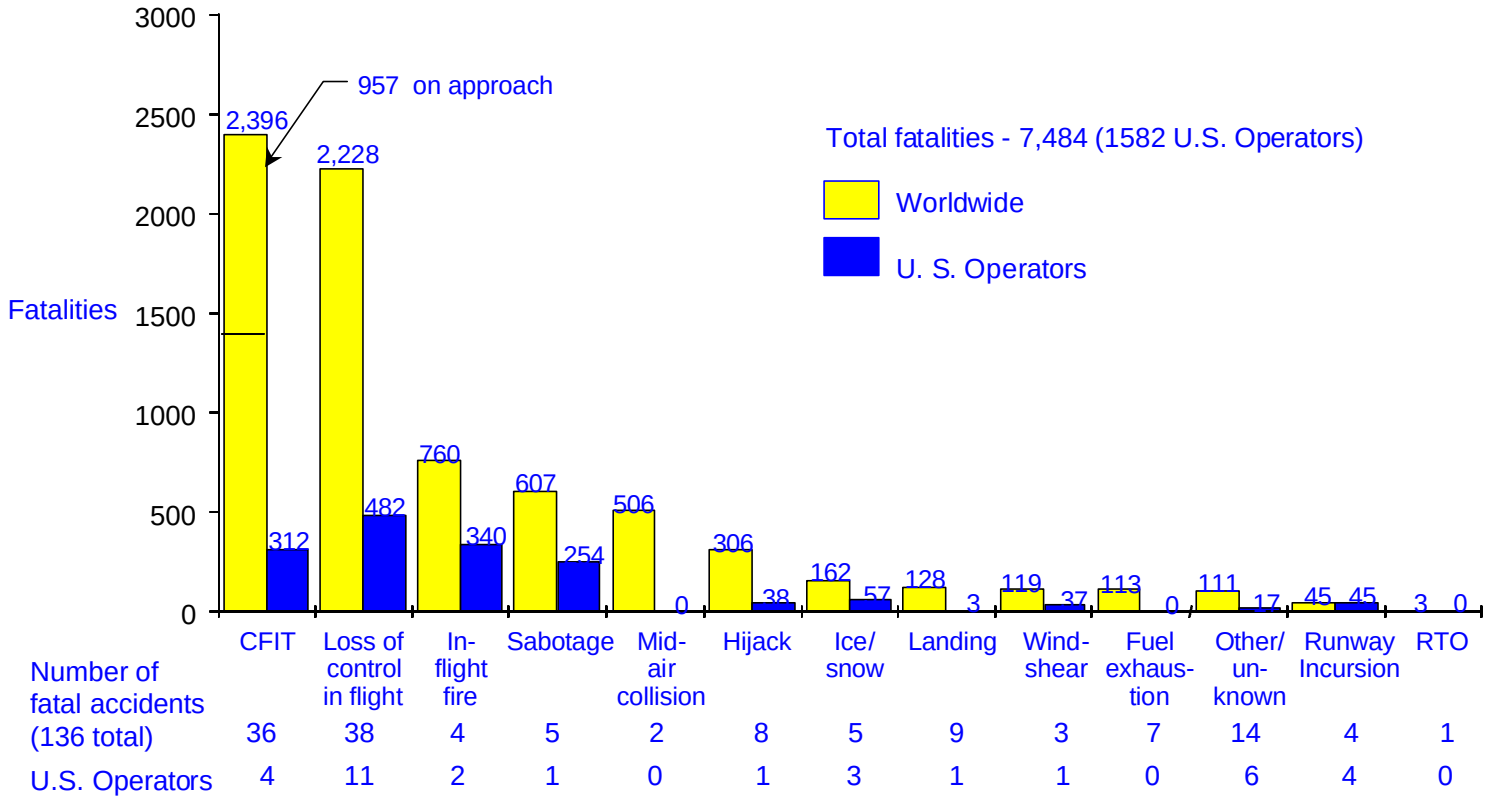

Figure 5. Comparison of Fatal Accident Types, U.S. versus Global Experience, 1987 - 1996 (Data: Boeing Commercial Aircraft Company)

U.S. Airline Hull Losses

Classified by Type of Accident – 1987 through 1996

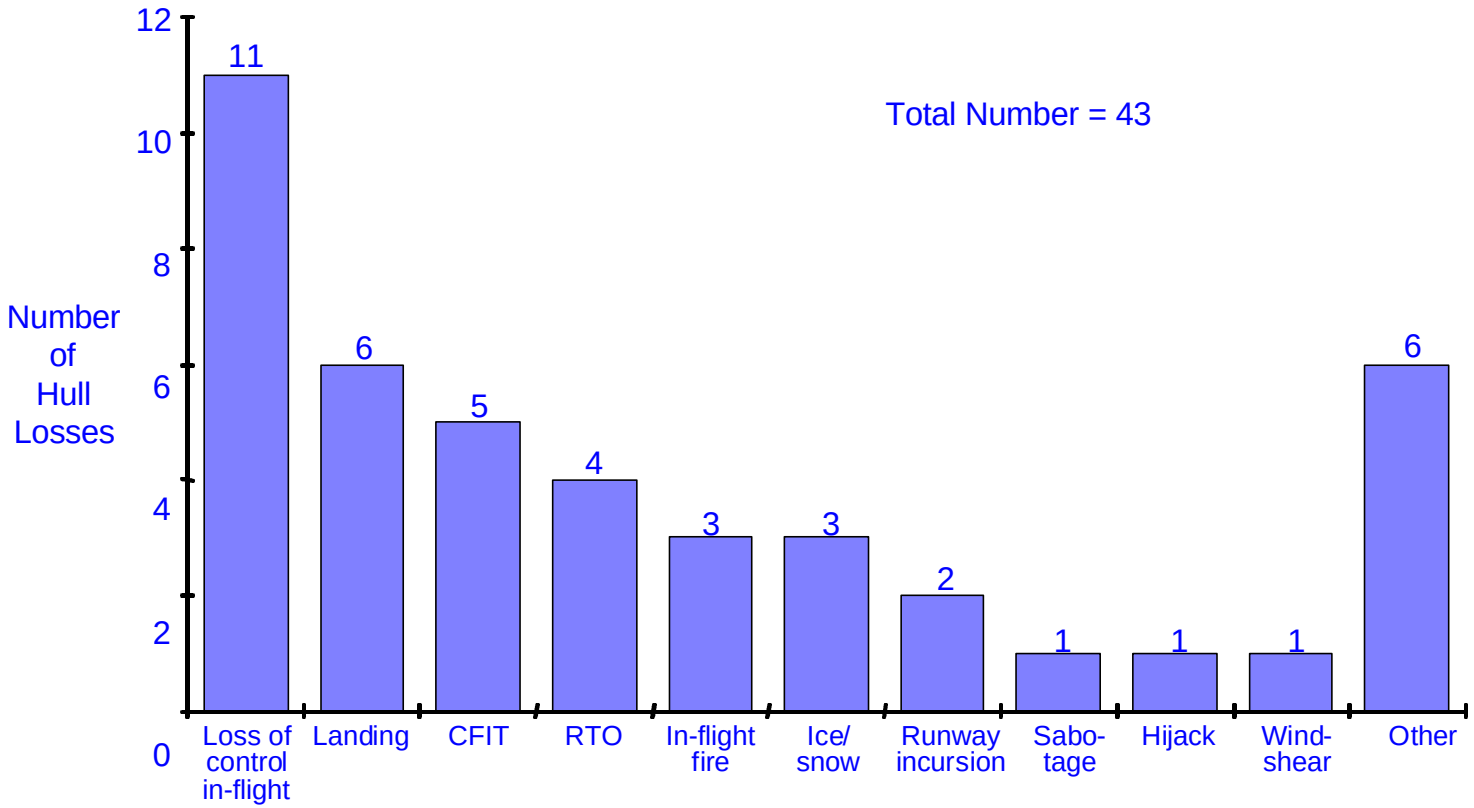

Figure 6. U.S. Airline "Hull Loss" (Destroyed Aircraft) Accident Causes, Fatal and Non-Fatal, 1987 - 1996 (Data: Boeing Commercial Aircraft Company)

The First Seven CAST Issues

- Controlled Flight Into Terrain (CFIT)
- Approach and Landing
- Uncontained Engine Failures
- Loss of Control
- Runway Incursions
- Turbulence
- Weather

Figure 7. Commercial Aviation Safety Team (CAST) Initial Priorities for Fatal Accident Reduction (1998)